

### ABSTRACT

A hybrid fiber coaxial communication (“HFC”) system configured to provide voice, video, and data services between a headend and a user gateway device at synchronous optical network (“SONET”) transmission rates. The HFC system comprises a broadband terminal in a headend, an optical to electrical (“O/E”) conversion node and a user gateway device. The user gateway device is located in a subscriber premise and provides the voice service to call devices, the video service to video display devices, and the data service to data display devices directly connected to the user gateway. The broadband terminal is configured to exchange voice, video, and data traffic with the user gateway via the O/E conversion node at SONET transmission rates. The optical to electrical conversion node is configured to convert upstream and downstream communications between optical carrier transmission rates and their electrical equivalent transmission rates.